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## THE SEROTINE, *VESPERUGO SEROTINUS*.

BY THE EDITOR.

### PLATE I.

COMPARED with its congener, the Noctule, *Vesperugo noctula*, of which an account was given, with a figure, in 'The Zoologist' for May, 1887, the Serotine is not only more local in its distribution, but is apparently much less numerous as a species. This at least is the conclusion arrived at after many enquiries for it in different parts of the country.

It is, of course, not unlikely that the proximity in size of these two species, and the similar appearance which they present when seen upon the wing at a little distance, may have led on many occasions to their being confounded, and it may be well therefore, before enquiring into the haunts and habits of the Serotine, to consider the characters which serve to distinguish it from the Noctule.

In regard to size, the following table will show the respective measurements of the two species:—

Name of Species.	Length.	Tail.	Head.	Ear.	Tragus.	Fore-arm.	Thumb.	2nd finger.	4th finger.	Tibia.	Foot and claws.
<i>V. noctula</i> . .	3·0	2·0	0·9	0·75	0·25	2·0	0·3	3·7	2·1	0·75	0·45
<i>V. serotinus</i> . .	2·75	1·8	0·9	0·75	0·35	2·0	0·3	3·5	2·0	0·75	0·35

In extent of wings the Serotine measures about  $12\frac{1}{2}$  in.\* against  $13\frac{1}{2}$  to 14 in. in the Noctule, so that when flying it looks comparatively shorter and broader. When examined at close quarters the extremity of the wing is seen to be very pointed. The tail also is long and pointed. In the size of the head there is apparently little difference, but the tragus is longer and more pointed in the Serotine than in the Noctule.

The dentition in the Noctule is—

$$I. \frac{4}{8}; c. \frac{2}{2}; pm. \frac{4}{4}; m. \frac{6}{6} = \frac{16}{18}.$$

In the Serotine we find—

$$I. \frac{4}{8}; c. \frac{2}{2}; pm. \frac{2}{4}; m. \frac{6}{6} = \frac{14}{18}.$$

The only difference being that there are two premolars less in the upper jaw of the Serotine than are found in the Noctule, and the teeth (32) are fewer in number than in any other British species of this family. The upper incisors are remarkably long and bifid at their extremities; the lower incisors trid.

The colour of the fur, which is soft, long, and silky, resembles that of the Noctule in being of a deep chesnut-brown; but there is this difference observable, that whereas in the Noctule the colour of the dorsal and ventral surfaces is alike, in the Serotine the under parts are always much paler, approaching to grey or yellowish grey. It has been remarked, however, by Bell, that the Serotine is liable to greater variation in colour than any other European bat.

The general similarity of the two species here compared may excuse their being sometimes confounded, especially when so good a naturalist as Geoffroy made the curious mistake of describing each under the name of the other ('Annales du Muséum,' vol. viii. p. 194). The late Dr. Gray, of the British Museum, in a 'List of the *Vespertilionidæ* of Great Britain' (Zool. Journ. ii. p. 108), included the Serotine as seen "about London," but we imagine the Noctule must have been mistaken for it. We have observed the latter repeatedly in London flying over the Serpentine, in Kensington Gardens, and around the ornamental

\* This is Bell's measurement of the extent of wings in the Serotine, but we have measured specimens which extended an inch longer than this, and equalled the Noctule. Some allowance must doubtless be made for the age of the specimen measured.

water in St. James's Park, but have never met with specimens of the latter in Middlesex; notwithstanding the statement in Jenyns's 'British Vertebrate Animals' (p. 22), that "it has hitherto only occurred in the neighbourhood of London."

The nearest point to the Metropolis at which the Serotine has been found, we believe, is Dartford Heath, in Kent, where many years ago specimens were obtained by the late Frederick Bond. From the records which we have collected, it would appear that it has been met with more frequently in Kent than in any other county of England, and its range in this country, so far as has been ascertained, seems to be entirely confined to the south-eastern counties. At Folkestone it was discovered more than forty years ago by Mr. H. N. Turner (Zool. 1847, p. 1635), and Mr. G. Buckton secured specimens at Chartham Paper Mills, near Canterbury. In September, 1874, we received from Mr. William Borrer, of Cowfold, near Horsham, an example of the Serotine which he had shot some years previously at Charlton, near Dover, where at that time it appeared to be not uncommon.

Mr. Borrer's notes on this species, which were communicated to 'The Zoologist' (1874, p. 4126), are particularly interesting. He says:—

"The first specimen I ever saw was taken at Bonchurch, Isle of Wight, and was sent me by my friend the Rev. A. C. Bury. On the evening of the 10th July, 1851, whilst walking in a lane at Charlton, near Dover, I saw a bat which I at once knew from its flight was of a species I never before saw alive. The next evening I shot a male of this species, and the night after, at the same place, a female; and on the 21st, near Riverchurch, in the same neighbourhood, another male, and I this night saw several others of this species. They commenced their flight about a quarter before nine, and at first they flew very low, hovering occasionally to catch something from the ends of the branches of the trees, in which act I shot the first.\* As the night got on, they flew higher, and between 9.30 and 9.45 they flew altogether out of gunshot in height. On the 3rd August I received from Mr. Gordon, of the Dover Museum, a half-grown one, taken from a hole in a tree near Waldershare, Dover; and in October, 1851, I received from him fifteen specimens alive, male and female. Of these I turned ten into the roof of my house at Cowfold, Sussex, and saw them careering round the house many evenings after. They generally flew

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\* The late Frederick Bond informed us that he had watched the Serotine taking moths off the blossoms of the blackthorn.

very high, their flight and manner on the wing much resembling those of the Swift, especially the habit of occasionally turning half over, with their wings extended and motionless. In April, 1852, three or four only appeared, and these I saw most evenings till in July I left home for a month, and saw no more of them till the 31st October, when a pair were again flying about my house. This species seems to be especially savage when handled, and will bite most severely if they have a chance. I could not make them take any food in confinement. These were all taken from the old clock-tower at Waldershare, the seat of the Earl of Guildford. After the last-mentioned date I saw them no more at Cowfold; but in June, 1870 or 1871, I found that they had become common at Henfield, about five miles south of Cowfold, where they appear to have remained ever since, probably inhabiting the church, for they are generally to be seen flying about some old trees in a meadow near. As I studied bats for many years at Henfield, and was a close observer, I feel certain that the Serotine was not there thirty years ago (say in 1825), and I cannot avoid the conclusion that they are my bats which migrated in a body from Cowfold."

Further westward we should expect to hear of the Serotine in Hampshire, for, according to the testimony of several observers, it is not uncommon in the Isle of Wight. The Rev. C. A. Bury, at Bonchurch, and Messrs. Bond, Hadfield, and A. G. More have all testified to its occurrence there. The last-named observer remarks, in a list of Mammalia printed in VENABLES' 'Guide to the Isle of Wight' (1860), p. 408:—"The Serotine appears to be generally distributed, and by no means scarce. It has been obtained repeatedly at Bembridge, where it was very common until the recent felling of old timber and clearing of hedgerows prescribed by the present advanced state of farming. Newchurch, Godshill, and Brigstone are also known to produce this species, said to be rare in Britain. The large bats shot by Bond 'round the cliffs near the edge of Freshwater Down, measuring three inches more than the Serotine across the wings,' and included in Mr. A. G. More's list (p. 409) as the Mouse-coloured Bat [*V. murinus*], to which species they were at first referred, were found on subsequent examination to be merely fine examples of *V. noctula*."

It should be observed here, that on a comparison of measurements, we have not found a greater difference in the extent of wing of these two species than about an inch and a half. Bell, however, referring to the variation of colour to which the Serotine is liable (Brit. Quadr. 2nd ed. p. 46), remarks that he



has seen specimens from the Isle of Wight and from Folkestone which were of a decided greyish tinge, and of *somewhat greater size than usual*.

Further to the westward than the Isle of Wight, and perhaps the opposite coast of Hampshire, we cannot hear of it, and all attempts to discover this bat in the Midland counties or further north have been hitherto unsuccessful. It is either not known, or not distinguished from the Noctule.

The only point *north* of London at which, so far as we are aware, its occurrence has been noted, is Coggeshall, in N.E. Essex. In a communication made to this journal in April, 1883 (Zool. 1883, p. 173), Mr. Miller Christy wrote as follows:—“Although the bats found in the county of Essex have received in the past a fair share of attention at the hands of Yarrell, Doubleday, and Messrs. Joseph Clarke and Henry Laver, the occurrence of the Serotine, *V. serotinus*, has not hitherto been recorded, having perhaps been confounded with the Noctule. I am glad therefore to be able to state that Mrs. Joseph Smith, of Great Saling, has in her possession a specimen of this bat which was shot more than twenty years ago [*i. e.* prior to 1863] in the garden of Pittiswick Hall, near Coggeshall. It is so shrunk through bad stuffing that it is useless to give its dimensions.”

There is said to be a specimen of the Serotine in the Museum at Newcastle-on-Tyne, which was taken at Cleadon in 1836, and presented by Mr. W. A. Swinburn (Meynell & Perkins, Cat. Mam. Northumb. Trans. Tyneside Nat. Field Club, vol. vi. 1864, p. 164), but it is more likely to be the Noctule, which is not included in the same Catalogue.

The specimen from which our illustration was taken was kindly forwarded to us for identification by Mr. George Dowker, of Stourmouth House, Wingham, Kent, on the 1st August, 1890, having been shot in that neighbourhood the previous evening. It was at once despatched to Mr. G. E. Lodge, who was thus enabled to take its portrait while still in a perfectly fresh condition, a matter of no small importance. Should this figure (which is on a much larger and more useful scale than that given by Bell), and the accompanying remarks, enable some of our readers to identify the species in districts where it has been undetected, our chief object in penning these lines will have been gained, and we shall hope to be made acquainted with the result.

THE HABITS OF THE MOOSE IN THE FAR NORTH  
OF BRITISH AMERICA.

By J. G. LOCKHART.\*

THE MOOSE is common over the whole country as far north as the borders of the barren grounds. In the valley of the Yukon, and on the west side of the Rocky Mountains, Moose are particularly numerous, and continue so westward to Behring Strait. There are particular localities where Moose are rarely, if ever, seen. For instance, so far as I have heard, they never approach the shores of Hudson's Bay near York factory. They are very rarely killed in the vicinity of Fort Rae, although they are quite numerous at Big Island and along this side of the lake.

The females have one or two young at a time. They have sometimes, but very rarely, been killed with three young inside; but no one, Indian or white, that I have known, ever saw a female followed by three sucklings or yearlings. For this I have never heard a reason assigned. Since the female has four teats giving milk, one would suppose that she might suckle as many as three young.

The food of the Moose consists of willows, small birch-trees, and shrubs, and also of grass and hay. Sometimes two or three will pass an entire winter near certain small lakes or large grassy swamps, in which they feed, scraping off the snow with their feet. In winter, when no water is to be had, they eat snow freely. In winter also the females are most sought after, because they are the fattest. In summer the male is best for the same reason.

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\* From the 'Proceedings of the U.S. National Museum,' vol. xiii. (1890). The manuscript of this paper was received from Mr. Lockhart in 1865, while he was an officer of the Hudson's Bay Company, of London, and has been preserved in the archives of the Smithsonian Institution. Between 1860 and 1870 Mr. Lockhart made many valuable contributions to the National Museum, including insects, birds, mammals, and fossils from Mackenzie River, Alaska, Great Slave Lake, and Hudson Bay Territory. For more than thirty years the Hudson Bay Company has zealously co-operated with the Smithsonian Institution in increasing the ethnological and natural-history collections of the National Museum. The objects thus received from Mr. Robert MacFarlane, Mr. Lockhart, and other agents of the Company, have added greatly to our scientific knowledge of British North America.

In fall, when the females are rutting, the males become very emaciated.

There are various modes of hunting the Moose, detailed accounts of which would be, I fear, too tedious. The first and most usual way is to approach the animals on snow-shoes or on foot, as only a hunter knows how, and shoot them. The old men who are not able to walk much in deep snow make a kind of fence of three poles tied equidistant from each other, a little taller than a man, stretching perhaps for two days' march between lakes, or a lake and a river, or between two mountains, or in any particular place where the Moose are accustomed to pass. Spaces are left vacant here and there in this fence, and in these snares are set. In autumn, during the rutting season, the hunter carries with him the clean, dried shoulder-blade of a Moose, and when he hears the call of the male Moose, which is audible at a distance of several miles, he rubs the shoulder-blade against a small, dry tree and imitates the call of the male. The Moose, as soon as he hears the sound, imagines no doubt that it is another Moose, and runs in the direction, till met by a shot. The male is very dangerous at that season, especially when wounded.

Many years ago, before guns and ammunition found their way into this country, the Indians used to build snow embankments near favourite feeding places, and lie hid there for days until a Moose should chance to pass near, when they would kill him with arrows.

I have been told that they run the Moose with horses in the plain country along the Saskatchewan. So long as the Moose keeps his trot, a horse cannot catch him, but if he can be forced into a gallop he soon becomes blown, and is then easily overtaken. The hunter uses every precaution, and having approached as near as possible to the animal, unperceived, he mounts, and putting his horse to its utmost speed generally surprises the animal so as to make it break into a gallop.

All Indians in the north have certain superstitious notions regarding the Moose. I have tried hard to prevail upon the Chippewyans to bring me some heads and horns, but without success. The reason for this is that the Indian women during their menses are not permitted to eat or even touch a Moose head, for should they do so they firmly believe that the captor will kill no more that winter. They say that this has been

remarked and proved since time immemorial. Now there are many women in the Fort, and they are continually going about from house to house, and, it may be, sitting and driving about on the dog-sleds upon which a head would require to be placed if brought from a distance. A head and horns brought to the Fort, cleaned and preserved, would doubtless be visited and handled by women, and if any of them should happen to be in the proscribed state it would finish the hunting success of the Indian who killed the Moose that year. At other times the women, as well as their husbands, handle and eat the heads. The Loucheux of Peel River and the Yukon are strict only with regard to the first Moose an Indian kills after having starved for a period. Of this the women are scarcely allowed to taste, and on no account must they taste the head. These Indians have no objection to part with Moose heads, if assured that no portion, even of the refuse, will be given to a dog to eat. They cannot be prevailed upon to bring young ones to the Fort alive, although many are caught every spring while crossing rivers and lakes. They say this would spoil their hunting altogether; but why, I could never get one to explain; probably the idea has some connection with the superstitions entertained among the Chippewyans regarding the women.

In spring, when the females are near calving, they proceed to places where they are least likely to be disturbed by Wolves, such as islands in lakes and rivers, and also in prairies and large swamps which are overflowed with water at that season; there they search for a dry spot among thick woods where they may bring forth their young. When the calves are very young the mother in their defence will even attack a man. At such times her appearance reminds one forcibly of that of a vicious horse. She raises her head, throws back her ears upon her neck, and sniffs or blows like a horse; then she bounds toward her enemy, striking the ground with her fore feet, her eyes glittering with rage.

When the snow happens to be very deep, Moose are run down on snow-shoes and killed with arrows. In spring, when there is a crust, accidents frequently happen in this species of hunting. If the hunter chance, from the nature of the country, to run too near the Moose, after he is fatigued, he will turn like lightning, leap toward his assailant, and trample him under foot. I have known several people who had very narrow escapes of this



kind. On one occasion three Indians were hunting and fell upon the tracks of a female Moose and her young one. They immediately gave chase, and in a short time the "Mannisheesh," or young one, became fatigued and stopped. One of the Indians, who had left his companions a short distance behind, approached in his haste too near the game. The young Moose instantly leaped towards him. In his eagerness to escape, his snow-shoe caught in a willow, and down he went with the Moose on top of him bucking and trampling with all four feet. His companions came up. The Moose again took to flight, and they went to pull out of the snow what they were quite certain would be a mangled corpse, but the man had scarcely received a scratch, so they shook him, and, joining in a hearty laugh, started again in pursuit.

The Moose down at Peel River and the Yukon are much larger than up this way. There I have known two cases of extraordinary Moose having been killed, the meat alone of each of them weighing about 1000 pounds. The Loucheux have a superstition that the Indian who meets with one of these extraordinarily large Moose is sure to die within the year, or else meet with some grievous misfortune.

A north wind in winter, when the sun does not rise high above the horizon, affords the best chance for Moose hunting. From some cause which I do not understand, the sun being then towards the south, shining against the wind, causes the tracks to be seen from a considerable distance. The hunter thus sees from a distance in which direction the Moose has gone, and acts accordingly. When the winds come from the east, west, or south, the tracks can rarely be distinguished more than a few yards off, and thus frequently they start the game in an unexpected quarter, without being able to get a shot.

Moose rise and feed at dawn. About sunrise they again lie down to chew the cud or sleep till 10 or 11 o'clock. Then they feed till 2 o'clock in the afternoon, again lie down till 4 or 5 o'clock, then feed till dusk, when they lie down for the night.

They generally lie down with their tails to windward, trusting to their senses of hearing and smelling, which are remarkably acute, to warn them of approaching danger from that quarter; they can use their eyes to warn them from danger to leeward, where hearing, and especially smelling, would be of little use.

While sleeping or chewing the cud, their ears are in perpetual motion, one backward, the other forward, alternately. They also have the remarkable instinct to make a short turn and sleep below the wind of their fresh track, so that any one falling thereon and following it up is sure to be heard or smelt before he can get within shooting distance.

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## ORNITHOLOGICAL NOTES FROM MAYO.

BY ROBERT WARREN.

THE winter of 1890-91 will be well remembered on account of the severe and long-continued frosts and heavy snow-falls in England, and also for the unequal distribution of the cold weather throughout the British isles, the central and southern counties appearing to suffer most; while here in Ireland, and especially in the west, we had a far milder season of comparatively slight frosts, without snow. So the effects on animal life were scarcely perceptible on this west coast, no birds suffering except the Black-headed Gulls, the various species of small birds that died off in such numbers in 1878-79 and 1880-81 escaping altogether. I saw no dead ones lying about, nor any sickly or weakly individuals moping about with ruffled feathers, as seen in previous winters.

In this district the winter set in with unusual mildness, and an excessive rainfall, there being only three dry days in November, and no frosts until the nights of the 26th, 27th and 28th, when the mercury in a thermometer (six feet from the ground) stood at 27°, 25° and 27°; but the temperature rose again above freezing, and on the nights of Dec. 1st and 2nd it stood as high as 48° and 51°, after which dates it began to fall gradually until the night of the 7th, when the thermometer marked 30°, and from that until the end of the month we had a continuance of slight frosts, with occasional thaws on odd days, the mercury never falling below 28°, and the average minimum temperature of the month being only 33½°.

The New Year began with the temperature at freezing, gradually falling until the nights of the 5th and the 7th, when, with a bitter E.S.E. wind, the mercury fell to 23° and 22°, indicating nine and ten degrees of frost; and on the latter night we had the

first snow of the season; at 11 p.m. it covered the ground to a depth of three inches, there being every indication of a heavy fall; but towards morning, with a change of wind and a rise of the thermometer to  $32^{\circ}$ , rain came on, clearing off all the snow by sunrise. Then until the 13th (when the general thaw set in) we had the same continuance of mild frosts, the mercury varying from  $32^{\circ}$  to  $28^{\circ}$  (the lowest), and on the nights of the 15th and 16th it rose to  $39^{\circ}$  and  $40^{\circ}$ . We had no frost after until the 20th, when, with a light fall of snow, the thermometer marked two degrees of frost, but that disappeared with the snow by noon next day, and the rest of the month was fine and mild, with a few showers of rain occasionally.

February began with a light frost, but the entire month was exceptionally mild and dry—in fact, the driest February we remembered in this part of the country, quite belying the old saying of "February, fill dyke," for we had twenty-two days without rain, and a light hoar-frost only on three days.

After March 5th cold, stormy weather set in, with frequent hail and snow showers on some days, but not remaining on the ground. A bitter frost began on the night of the 10th, becoming very severe on the two succeeding nights, when the mercury (in a thermometer eighteen inches from the ground) fell to  $22^{\circ}$  and  $20^{\circ}$  (the coldest night of the season), but fortunately, the wind changing round from N.N.E. to S. caused the frost to disappear as rapidly as it came, though not before it alarmed many farmers who had potatoes planted, for fear of its having reached the "sets," so deeply had it penetrated into the soil. For the rest of the month the weather continued very stormy and cold, no vegetation of any kind showing; and, in the midst of blinding hail showers, our earliest spring visitors, the Sandwich Terns, loudly gave notice of their arrival in the estuary.

Owing to the ground being so long frozen, preventing any worms coming to the surface, the Black-headed Gulls suffered severely from want of food from the middle of December up to Jan. 13th, when the thaw set in; numbers died throughout the district, and were seen lying about the fields and along the shores of the estuary, where they had been left by the tides. So hard pressed were they for want of food, that a flock of about twenty birds regularly haunted my poultry yard for nearly three weeks, feeding with the fowls, and flying readily to any food thrown to

them. A couple of Common Gulls occasionally joined them at the poultry-trough, but not every day, for these visits were resented by some of the Black-heads, who used to attack and drive them off. Some of the Gulls were very weak, scarcely able to fly out of the yard when disturbed, and from day to day I used to miss out of the flock several well-marked individuals that had probably died at night of cold and starvation. Some Blackbirds and Thrushes, with a few Missel Thrushes, regularly fed at the troughs until the thaw; but two days after it set in, not a Gull appeared in the yard.

At Belleek Manor, near Ballina, over a hundred Gulls haunted the terrace outside the hall-door, where they were fed regularly during the frost, and so tame had they become as to take food from the hand. The Fieldfares and Redwings mostly left this part of the country after the frost set in, only a few Redwings remaining about the thorn-hedges to eat the haws. In consequence of there being no snow on the ground, the small birds appeared to manage to obtain sufficient food, for none of them were driven to seek food on the shore, as is usual in hard winters in this locality. There was an immense migration of Wigeon in the estuary, as if they were crowding in from the colder parts of the country, and I remarked quite as many as in the severest winters, such as 1878-79 and 1880-81; but, except on two or three nights, the frost was not hard enough to drive the Wild Ducks out of their inland haunts to the sea-coast, and in consequence they were not seen in anything like the numbers observed in the estuary during the winters mentioned.

There was a great migration of Woodcocks to all the coverts, and unusually heavy bags were made in Mayo, Sligo and Galway. The White-fronted Geese were very numerous, and many were trapped at the unfrozen springs where they fed. I saw several hanging in a game-dealer's shop in Ballina that had all been taken in the ordinary rabbit-traps; one was a young bird of the year, in very dark plumage, not having a trace of white round the base of the bill, nor any black marking on the breast, and only for the colour of feet and bill was rather puzzling to identify. Very few Swans were noticed passing across the country, though I was told that eight or ten visited Lough Conn, and that larger numbers were seen on the lakes in the Erris district.

I was disappointed in not meeting with rare birds during the



severe weather, although I was constantly on the look out for such visitors, and frequently on the water punt-shooting in the estuary, I had ample opportunities for seeing any that might appear. On one day I saw a little party of eight Scaup Ducks near Killanley, and knocked down six out of the number, but owing to my cripple-stopper missing fire, two cripples got off. The four secured were all young males in first year's plumage, with the broad white patch on forehead, and the only trace of male plumage was a few of the grey wavy feathers appearing on the back, some scarcely visible. Sheldrakes were more numerous than usual; a flock of between thirty-five and forty haunted the sands all the winter, but most of these have now left, there being only three or four pairs remaining to breed in the Bartragh and Enniscrone sand-hills. Curlews were in great numbers, but few were shot, in consequence of deserting some of their old resting-places, having been so disturbed by the small-gun shooters; however, I obtained some fair shots, one of sixteen birds on the bank near the island of Baunros, and another of eighteen on the bank near Rosserk Abbey; on both occasions a little after daybreak.

One of the most extraordinary and interesting sights of the season was the immense congregation of Green Cormorants that used to assemble for some weeks in December and January on the lower part of the river, where it runs outside the bay, just inside the "bar." Here, after fishing, many hundreds—up to two thousand—birds used to rest at low-water on the sands at both sides of the channel; and when this great flock used to rise on the wing at the approach of a punt or boat, the sight was most bewildering and confusing, for nothing could be seen but this mass of dark forms circling round and crossing and recrossing in all directions over the punt until they all had satisfied their curiosity by a good look at the boat and its occupant. Where this immense gathering of Cormorants could have come from I cannot imagine, for I never before saw a larger number than one or two hundred birds resting on the sands either at the Moy or Killala bars, and nothing like the numbers could have been bred on this line of coast. The only explanation I can suggest is that a great part of them had shifted their quarters along the coast from the more northern bays and inlets.

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## NOTES AND QUERIES.

## MAMMALIA.

**Animals eating Yew.**—The poisonous properties of the yew referred to (pp. 151, 186) is, at all events in the Midlands, a well-known fact to agriculturists. I can well remember the painful result of a herd of cattle breaking into a spinney of yew trees, and feeding on the leaves. The incident I refer to occurred some years ago in Leicestershire, and, without going into details, it will suffice to state that, out of twenty-five well-fed bullocks, eighteen were dead in the morning. I think the generally accepted hypothesis is, that the leaves have a narcotic acrid effect, acting more on the spinal cord than on the blood! Mr. FitzGerald's supposition (p. 186) is certainly wrong; but I believe the nature of the case greatly depends on the quantity swallowed, for if taken with, say, three or four times the quantity of their ordinary food, it is said that the foliage of this plant is comparatively harmless.—C. E. STOTT (Bolton-le-Moors).

**Daubenton's Bat near Edinburgh.**—I have recently examined specimens of this probably overlooked species, which were captured at Liberton, near Edinburgh, in July, 1880, and supposed to be specimens of the Pipistrelle, *Vesperugo pipistrellus*. Daubenton's Bat, *Vespertilio daubentonii*, has not, I believe, been hitherto recorded for this county.—W. EAGLE CLARKE (Science and Art Museum, Edinburgh).

## CETACEA.

**Common Rorqual on the Essex Coast.**—I had an opportunity of examining the whale which was captured on Feb. 12th, at Holliwell, about four miles from Burnham-on-Crouch, and found it to be a Common Rorqual, *Balanoptera musculus*, female, not fully grown, measuring a little under 47 ft. in length, and in poor condition. The most interesting feature to remark is the curious asymmetry of colour which appears to be a constant character of the species, and, though unnoticed or unrecorded till of late years, is nevertheless very apparent to a careful observer; in this specimen, on the left side, the top of the head, the under jaw, and the baleen (so-called "whalebone"), pendant from the upper jaw, being of slaty-black colour; whilst, on the right side, a portion of the upper jaw, about 2 ft. of the baleen in front, and a strip of the under jaw to about 5½ in., were white, whilst the throat was slate-black, extending in an oblique line to the junction of the pectoral fin; the remaining portion of the throat and under parts being white nearly up to the tail-flukes. This difference of colour on the two sides of the head was first recorded and figured by Prof. G. O. Sars (Christiania Videnskabs Sels, and Forh. 1880).

~~This species is perhaps~~ the most common of the Finner Whales or Rorquals, and has been frequently stranded and captured on the British coast, especially in the north, and many skeletons are preserved in British and continental museums. Its fully-grown length is from 65 to 70 ft., and the two skeletons which are to be seen in the Natural History Museum at South Kensington are about 68 ft. in length. To one of these are attached the preserved dorsal fin and the tail-flukes. In conclusion, it may be well to mention that the whale which was taken in the river Crouch, on the opposite side, on Nov. 1st, 1883, was a specimen of Rudolphi's Rorqual, *Balænoptera borealis*, and was about 29 feet in length. This was described by Prof. Flower in the 'Transactions of the Essex Field Club' and the 'Proc. Zool. Soc.', and the skeleton now abides in the Museum at Sydney, New South Wales.—WALTER CROUCH (Wanstead, Essex).

**Sibbald's Rorqual on the Irish Coast.**—A well-grown specimen of this whale was taken in Wexford Bay on the 28th March last, and the following particulars have been kindly sent to me by Mr. Jasper Walsh, Lloyd's agent at Wexford, who obtained the information at my request, and says that, so far as it goes, it may be relied on. A photograph which he sent, showing the whale half in the water, was too small to be of any use in identification. It was probably a female, the upper parts black, and the lower slate-colour, and the extreme length 82 ft. The measurement from the eye to end of lower jaw,  $16\frac{1}{2}$  ft.; length of pectoral fin,  $10\frac{1}{2}$  ft. by 2 ft. 7 in. greatest breadth; tail flukes,  $8\frac{1}{2}$  ft. each: the dorsal fin extremely small, about 28 in. at base and 11 in. in height: the baleen black, about 2 ft. in length clear of the fringe. Prof. Flower informs me he has seen a portion of the baleen, and there is no doubt as to the species. The carcase was seized and sold by the Receiver of Customs, and was knocked down to Mr. W. Armstrong, of Wexford, for £111.—WALTER CROUCH (Wanstead, Essex).

#### BIRDS.

**Dartford Warbler in Winter.**—Can any of your correspondents give me any information about the Dartford Warbler after this severe winter? I am afraid that this rare and delicate species must have suffered severely. In spite of the severe weather, on March 24th I found a Song Thrush's nest with young ones, evidently hatched nearly a week. In the hard winters of 1879 and 1880 the Golden-crested Wrens, previously very numerous here, were almost exterminated. Since then they have been increasing again, and, I am glad to say, seem to have stood this winter fairly well. As there are several about still, I hope the Dartford Warblers may have escaped as well.—W. B. PUREFOY (Greenfields, Tipperary).

[We hear from Dorsetshire that, in a locality where the Dartford Warbler used to be found, not one has been seen since the severe frost of

the past winter. We presume our correspondent is aware that this bird is unknown in Ireland. From his letter it might be inferred that it is to be found in Tipperary.—ED.]

**Blackcap in Sussex in Winter.**—You may add Sussex to the counties in which the Blackcap has been seen this winter. On Feb. 22nd I saw a hen bird of this species on the street pavement searching for insects in scraper-holes and the corners of entrances to houses. The bird looked very puffy, and permitted me to come within a foot of it, but had enough life in it to fly upon a wall when I attempted to catch it with my hand. I noticed it several times during the day, but not afterwards.—S. H. VERRALL (Lewes).

**Red-throated Diver and other Birds in Notts.**—During October last Lord Middleton shot, on the lake in his park at Wollaton, a nice specimen of the Red-throated Diver and a female Scaup. A Common Buzzard was obtained, during the same month, near Nottingham; and Mr. Barron shot a pair of Pintailed Ducks, just over the boundary, in December. Mr. Masters shot two Bean Geese at Annesley Park during the same month. Two Smews were shot on the Trent, near Beeston, and one on the same river at Shelford.—J. WHITAKER (Rainworth, Notts).

**The Evolution of Bird-song: a Correction.**—In my second article on the "Evolution of Bird-song" (Zool., 1890, p. 284), I stated that the Kittiwake and the Peregrine Falcon had a similar cry; I should have said that the Herring Gull and the Peregrine had a similar cry—a note like "horrock." I am engaged on a work upon Bird-song, and should be glad to receive records of remarkable instances of imitation, &c., by wild or captive birds. I should like to add that the theories stated in the articles in question have been supported by my later observations, and by many facts which I have gleaned from several authors.—CHARLES A. WITCHELL (Stroud).

**The Birds of Heligoland.**—The long-expected appearance of Mr. Gätke's volume on the Birds of Heligoland will be hailed with satisfaction by ornithologists. The work, which has been in hand for many years, has been edited by Prof. Rudolf Blasius, and published in Brunswick. It is a handsome, well-printed, royal octavo volume of 609 pages, and represented on the pretty cover is a lighthouse, in black and gold, radiating beams of light into the night, with a cloud of birds drifting past, and with the appropriate title of the book below—'Die Vogelwarte Helgoland.' The work is divided into three sections, the first of which has reference to the migration of birds under the various headings:—(I.) The ordinary migration of Heligoland. (II.) Direction of the migrants. (III.) Height at which migrants travel. (IV.) Speed of migrants. (V.) Meteorological conditions influencing migration. (VI.) Migration in connection with age



and sex. (VII.) Exceptional appearances. (VIII.) What guides the birds during their migrations? (IX.) What leads to the setting out for migration? In Section II. we have a chapter on the change of plumage in birds by the renewal of colour without a moult. The remainder of the volume is occupied by a list and descriptive text of 396 species which have been observed and noted at Heligoland up to date. The book is charmingly written, and the author's descriptions of bird-life, as seen on passage on the island, are full of life and vigour, and expressed in a graphic and picturesque manner. Of the great scientific value of the work, at last accomplished, I need not now speak; containing, as it does, the carefully recorded experiences of more than forty years at the best station in the world for watching the migration of birds, this volume must be invaluable to ornithologists, and it seems highly desirable that an English translation should be prepared and published with as little delay as possible. — JOHN CORDEAUX (Great Cotes, Ulceby).

**Variety of the Wild Duck.**—Mr. Foljambe sent me, during the frost, a very pretty variety of the Mallard. Breast greyish white; neck rosy grey; back pale slate-colour, speculum two shades darker; curled feathers in tail slate-colour, and rump the same colour.—J. WHITAKER (Rainworth, Notts).

**Lapland Bunting in Lincolnshire.**—On Nov. 18th last I shot a specimen of the Lapland Bunting, *Calcarius lapponicus*, among the sandhills at North Cotes, on the Lincolnshire coast. It proved to be a male in winter plumage, and was alone, feeding on the ground among the long bents, and in its movements, &c., resembled a Snow Bunting. It had probably just come in, as, though late in the day, its stomach contained only a few seeds and husks of two species of grass growing on the sandhills. On the same afternoon I saw the first large flock of Snow Buntings coming in from the sea; and among the sandhills were a few Yellowhammers and many Reed Buntings, all probably fresh arrivals. The weather was fine and warm, with a light W. wind.—G. W. CATON HAIGH.

**Wildfowl in Devon during the Winter of 1890—91.**—The winter of 1890—91 will ever be remembered as being one of exceptional severity, and one which has driven to this county immense flocks of wildfowl; never have so many been seen and obtained before. I have myself been very fortunate in obtaining a few good specimens for my collection. Wild Duck and Wigeon have been shot by the hundred, and Teal in less numbers. The Smew, a rare winter visitant, has been obtained on three or four occasions this winter, one of which I examined was a male in full dress: birds in this plumage are seldom met with, as they keep farther out at sea, and rarely approach the shore. I also examined, at the same time, a male

Pintail, in perfect plumage, which had been shot on the estuary of the Exe. Flocks of Shelducks appeared on the River Exe, and several were sent to the poulterers for sale. Scaup, Pochard and Goldeneye have also been procured, the latter in rather large numbers. I have detected many of these at our game-dealers, as also several specimens of the Red-breasted Merganser. Immense flocks of wild geese, chiefly Brent Geese, continued to visit us from the commencement of the severe weather. A few specimens of the Bean Goose were shot early in January, one of which I fortunately obtained, as also a specimen of the White-fronted Goose. When shooting on the River Exe, on Jan. 19th, I was astonished to see such flocks of Brent Geese, which were pursuing their course from the sea to the river, and *vice versa*: several gunners were awaiting their arrival, some of whom were successful in obtaining specimens, myself included, having added two splendid birds to my collection. A few Whoopers were seen, and I believe two or three examples were secured. I should say that this has been an exceptional winter for Bitterns, judging from the reports of their occurrence: I have examined several specimens obtained in this county. Woodcock and Snipe have been very plentiful. — WM. E. H. PIDSLLEY (Blue Hayes House, Broadclyst, Devon).

**American Bittern in Co. Kildare.**—An American Bittern, *Botaurus lentiginosus*, was shot on Maddenstown Bog, near Newbridge, Co. Kildare, on the 20th February last. It was a female bird, weighing 1 lb. 3 ozs., and was in fair condition. It is a curious fact that another bird of the same species was shot on the same bog last year, and is preserved in the collection in the Museum of Science and Art, Dublin. — EDWARD WILLIAMS (2, Dame Street, Dublin).

**Crossbills breeding in Co. Waterford.**—On the 16th May, while in a tree with a Siskin's nest, a flock of nine Crossbills flew past, uttering their loud rattling note; so they have not forsaken Cappagh, but having probably bred earlier than last year, owing to the mildness of February, the broods have now flocked and are flying around their breeding-haunt. — R. J. USSHER (Cappagh, Co. Waterford).

**Wild Swans in the Isle of Man.**—During the past winter several Wild Swans appeared in the Isle of Man. About the commencement of this year one was observed in Douglas Bay, which was very tame, coming close to the landing-pier, from which it was twice fired at. Later on several were seen at Port St. Mary, one of which seemed to be wounded. About the middle of January one was shot at Scarlett, near Castletown, and proved to be a Whooper. At the same time I happened to be in the north of the island, and was there told that a Wild Swan had been captured on a pond about twenty yards wide. The bird sat on the ice covering the pond, and as it did not rise when approached, a rope was

stretched across and it was drawn in to the bank. It was found to have one of its legs broken, which may have caused its inability to rise. It was taken to a farm, but refusing to eat, was put out on the pond again, where it was found dead the next day. It had been left under some gorse for over a fortnight, when I got to the place, and immediately had it skinned and sent to Manchester to be set up; fortunately it was in time for preservation. This was a Bewick's Swan. The place where it was caught was at Orrisdale, Kirkmichael, very close to the sea-coast brows. The winter here was very mild, but an unusual quantity of wildfowl arrived. On February 19th, three Shovellers, *Anas clypeata*, two drakes and one duck, were shot at Langness, out of a party of four. The Shoveller seems to be a very rare bird here.—FRANK NICHOLSON (1, Laureston Terrace, Douglas, Isle of Man).

**Turdus migratorius in the British Islands.**—On the 4th of May last, an adult male American Robin, or Red-breasted Thrush (*Turdus migratorius*), was shot at Springmount, Shankhill, a few miles from Dublin. Mr. Murphy saw it feeding in a field, and recognising it to be a stranger, sent for a servant-man to shoot it. It was in good condition, and the stomach contained the remains of beetles. It was sent to Mr. Edward Williams, of 2, Dame Street, Dublin, who showed it to Mr. A. G. More before he skinned it, and sent it to me directly afterwards, whilst the skin was still soft. It does not show any sign of having been in a cage, the feet being quite clean and healthy, and there is no sign of undue abrasion on either wings or tail. It is in almost full breeding plumage, and belong to the typical or eastern race of the species; the tail being very dark, and the white patches at the end of the outer feathers being well developed. This species has been previously recorded as a British bird (Harting, 'Zoologist,' 1877, p. 14), an example having been caught alive in April or May, 1876, near Dover. It has also occurred on the Island of Heligoland, where a fine example flew against the lighthouse, and was picked up dead, on the 14th of October, 1874 (Gätke, 'Die Vogelwarte Helgoland,' p. 264). Four other European occurrences are recorded (Dalglish, 'Bulletin of the Nuttall Ornithological Club,' 1880, p. 68), one near Berlin, and three in Austria. Under these circumstances we may fairly claim the American Robin as a rare straggler to Europe, and add it to the list of British Birds.—HENRY SEEBOHM (22, Courtfield Gardens, S.W.).

**Notes from Sussex.**—The following notes are from the letters of an obliging correspondent residing at Pevensey. Writing on Oct. 27th last he says that a Marsh Harrier and a Great Grey Shrike were observed near Bexhill. Two Spotted Crakes and a Purple Sandpiper were shot at Pevensey. On Dec. 10th he records a Shieldrake, and remarks that he has not known one shot there for nearly twenty years. In a later letter,

after alluding to the severe weather which prevailed in December, my friend writes, "The flight of birds to the westward for a few days were astonishing, all going before the snow." This is probably part of the same flights already recorded (pp. 63—66). A male Bittern was shot in Hove Levels on Jan. 20th, and my friend saw another during the first snow: it passed within a few yards of him, while he was waiting for Duck at flight-time. Another Sheldrake and a Slavonian Grebe were killed near Pevensey about the middle of January.—T. H. NELSON (Redcar).

**Winter Notes from Shoreham.**—The frost began here on Nov. 26th with a shower of snow, the result of which was an enormous influx of all kinds of fowl, especially Snipe, which fairly swarmed in the unfrozen springs, and a great movement of small birds to the west, mostly Larks, Linnets, and Starlings. On the 29th I bagged several Snipe, all of which were in very poor condition, and picked up several frozen Larks. A Long-eared Owl was winged in the Warren, in mistake for a Woodcock, and although it never became tame it fed well, and was released as soon as its wound had healed. The first Brambling, *Fringilla montifringilla*, was caught in the bushes by the house on that day. On Nov. 30th the holly trees were full of Redwings, busily eating the berries, and a Grey Wagtail appeared in an unfrozen dyke. On Dec. 6th, caught a Cirl Bunting in the sparrow-net at night. On the 8th, shot the first Wigeon up the river, and a Sheldrake was seen; the unfrozen dykes were full of Water Rail and Snipe, both of which were very thin. There were large flocks of Larks flying west on the 20th, and on the 21st the Park was full of Bramblings in large flocks. On the 22nd, went out to sea, and saw several Brent Geese and a pair of immature Eiders; Great Northern and Red-throated Divers were following the shoals of sprats in hundreds; we must have seen fifty or sixty on the wing at once; a full-plumaged Goldeneye and a Short-eared Owl were shot by the river. On the 23rd two immature Tufted Ducks were shot in the river. On the 25th a Great Crested Grebe was seen by the Groynes. On Jan. 2nd two Bitterns were shot the other side of the river: I saw one of them, and it was in very good condition. On returning from the morning flight I found one in the Spring-dyke, but did not shoot it, and later on in the day flushed it twice again, once approaching it within five yards: it flew very heavily, with a low, croaking note. The keeper was put on to watch it, and it remained in peace till Jan. 9th, when at last it either strayed to the other side of the river or was poached, as it was not seen again, and the next day one was for sale in Shoreham. A large flock of Sheldrakes appeared, and one was shot, as well as an adult male Tufted Duck. A flock of twenty-two Geese flew over the Park and frequented the open downs for some days, but were unapproachable. I saw large numbers of Brent at sea flying to the eastward, and a Peregrine, which flew about the shore. On Jan. 4th there was a slight thaw, and I found large



numbers of Blackbirds, Thrushes, and Redwings lying dead under the evergreens, evidently frozen to the boughs at night and brought down by the thaw. On Jan. 10th, saw six Sheldrakes close to the shore, and a Bernacle Goose shot the previous day out of a flock of eight; it was in fair condition and in good plumage. Several Smews were shot, and a man from Brighton shot a Little Gull, *Larus minutus*. On the 22nd two Greylags, *Anser ferus*, were shot up the river, and weighed 7 lbs. and 6½ lbs. respectively; they were very good eating. The thaw then set in thoroughly, and the Rooks returned to roost in the Park, after an absence of nearly two months. Dead birds were then lying about everywhere, and I am afraid our garden will have but few nests this year.—F. HEAD (Buckenham, Shoreham).

## FISHES.

**Large Trout in the Thames.**—At Medmenham lately Mr. Clare Sturgess took two Trout weighing respectively 11 lbs. and 7 lbs. These are fine weights for the Thames, and the capture is the more remarkable since they were both landed on the same day.

## BATRACHIA.

**Homing Instinct of *Hyla arborea* (Linn.).**—Two and a half years ago I put a small green frog (*Hyla arborea*) that my daughter brought from the South of France into my conservatory. In the following spring he began to croak, and, contriving to make his escape, found his way to the pond where his strident voice awoke the echoes every summer evening. He always remained about the same spot, which was about 300 yards from the conservatory. Now comes the extraordinary part of his history. When the winter came on, he found his way back to the conservatory. This performance he repeated last year, and now again he has found his voice. That so small a creature should remember where he had been comfortable in winter, and find his way back to the conservatory across an open lawn, seems to me very extraordinary.—E. N. BUXTON (Knighton, Buckhurst Hill.)

## INSECTS.

**Locusts in India and Egypt.**—Papers received by recent mails from India report a plague of Locusts in Northern India, and they are present in such swarms in the Jhelum district that the civil authorities are hard at work having them destroyed. Bad though matters are in the neighbourhood of Jhelum and Pind Dadan Khan, the damage caused by Locusts is even greater in the "teshils" of Chucknal and Tallagung. During the last week in April the railway between Jhelum and Demali was again so covered with Locusts that on several occasions the trains had to be taken on in sections along the line to avoid accident. These insects are said now to be leaving Lahore, though a few may still be seen about, but they soon fall

a prey to the Blue Jays and King Crows. In Egypt, too, the plague is assuming serious proportions, and the Government has delegated Mr. Hooker, a leading official, to leave for Upper Egypt, in order to take measures for the protection of the crops against the ravages of these insects. Mr. Wallace, Director of the Farming School, is charged with a similar mission to the Delta.

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## SCIENTIFIC SOCIETIES.

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### LINNEAN SOCIETY OF LONDON.

April 16.—Prof. STEWART, President, in the chair.

The following were elected Fellows of the Society:—Messrs. J. Oliver, J. H. Hill, W. D. Crotch, A. S. Woodward, and W. B. Longsdon.

A paper, by the Rev. F. R. Wilson, was read, "On Lichens from Victoria," in which several new species were described, specimens of which were exhibited.

A paper, by Surgeon-Major A. Barclay, followed, "On the life-history of two species of *Puccinia*, viz. *P. coronata*, Corda, and a new species which the author proposed to name *P. Jasmini-chrysopogonis*. A feature of peculiar interest noted in the latter species was the extraordinary abundances and wide distribution of the teleutosporic stage as compared with the comparative scarcity of the æcidial stage, and this disproportion in the distribution of the two stages had been remarked by the author long before he had ascertained that they were related. A discussion followed in which several of the botanists present took part.

May 7.—Prof. STEWART, President, in the chair.

Messrs. J. H. Hill and J. Oliver, and Prof. A. Milnes Marshall were admitted, and Mr. M. A. Ruffer and Prof. Cramer were elected Fellows of the Society.

Prof. R. J. Anderson exhibited a panoramie arrangement for displaying drawings at biological lectures.

Mr. John Young exhibited a nest of the Bearded Titmouse, *Calamophilus biarmicus*, which had been built in his aviary. Several eggs were laid, but none of them were hatched.

The Rev. E. S. Marshall exhibited several specimens of a *Cochlearia* from Ben More, believed to be undescribed.

Mr. Robert Drane forwarded for exhibition a plant of the rayless daisy found growing abundantly in the neighbourhood of Cardiff; and an undetermined sponge dredged in about forty fathoms off the coast of South Wales.

Mr. D. Morris drew attention to a Jamaica drift-fruit recently found on the coast of Devonshire. Although figured so long ago as 1640 by Clusius, and subsequently noticed by other observers, the plant yielding it had only lately been identified by Mr. J. H. Hart, of Trinidad, as *Sacoglottis amazonica*. Mr. Morris likewise exhibited specimens of the fruit of *Cato-stemma fragrans*, received, for the first time, from St. Vincent, showing its true position to be amongst the *Malvaceæ*, tribe *Bombaceæ*.

Mr. Thomas Christy exhibited some kola-nuts, and made remarks on the properties attributed to their medicinal use.

A paper was then read by Mr. Malcolm Laurie on the anatomy of the genera *Pterygotus* and *Slimonia*, and their relationship to recent *Arachnida*. An interesting discussion followed, in which the President, Prof. Howes, Dr. H. Woodward, and others took part.

#### ZOOLOGICAL SOCIETY OF LONDON.

May 5.—Prof. W. H. FLOWER, C.B., LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of April, and called special attention to the arrival of what appeared to be an adult male example of the Lesser Orang, *Simia morio* of Owen, presented by Commander Ernest Rason, R.N., who had obtained it at Sarawak; and to a Great-billed Tern, *Phaethusa magnirostris*, obtained by purchase, new to the collection.

Mr. Sclater opened a discussion on the fauna of British Central Africa, by pointing out the limits of this new territory, which was computed to embrace some 54,000 square miles of land lying immediately north of the Zambezi and west of Lake Nyassa. Mr. Sclater gave an account of the principal authorities who have already written on the subject. He was followed by Mr. G. A. Boulenger, who read a paper "On the State of our Knowledge of the Reptiles and Batrachians of British Central Africa." The discussion was continued by Mr. Edgar A. Smith, who read a note on the Molluscan fauna of British Central Africa; and by Mr. E. T. Newton, who communicated some general remarks on what is known of the geology of British Central Africa, stating several points to which special attention should be directed. Remarks on various branches of the same subject were made by Dr. Günther, Mr. O. Thomas, Mr. Stebbing, Mr. Salvin, and Mr. Beddard.

Mr. T. D. A. Cockerell read notes on some Slugs of the Ethiopian Region, based on specimens in the collection of the British Museum.

Dr. C. J. Forsyth-Major read a paper containing a summary of our knowledge of the extinct Mammals of the family *Giraffidæ*.

A communication was read from the Hon. L. W. Rothschild, containing the description of a new Pigeon of the genus *Carpophaga*, from Chatham Island, South Pacific, proposed to be called *Carpophaga chathamensis*.

Col. Beddome read descriptions of some new Land-Shells from the Indian Region.—P. L. SCLATER, *Secretary*.

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ENTOMOLOGICAL SOCIETY OF LONDON.

May 6, 1891.—Mr. FREDERICK DUCANE GODMAN, M.A., F.R.S., President, in the chair.

Mr. Robert A. Dallas Beeching, of 24, St. James's Road, Tunbridge Wells, Kent; Mr. H. Shortridge Clarke, of Douglas, Isle of Man; Monsieur Léon Fairmaire, of 21, Rue du Dragon, Paris; Mr. Wm. Reid, of Pitcaple, Aberdeenshire; and Mr. Nelson M. Richardson, B.A., of Montevideo, Weymouth, were elected Fellows of the Society.

Dr. D. Sharp exhibited a number of eggs of *Dytiscus marginalis* laid on the sheath of a species of reed, and commented on the manner of their oviposition, which he said had been fully described by Dr. Régimbart.

The Rev. A. E. Eaton exhibited a collection of *Psychodidæ* from Somersetshire, including six species of *Psychoda*, eleven species of *Periconia*, and one species of *Ulomyia*. Mr. M'Lachlan commented on the interesting nature of the exhibition.

Mr. P. Crowley exhibited a specimen of *Prothoë caledonia*, a very handsome butterfly from Perak; and a specimen of another equally handsome species of the same genus from Tonghou, Burmah, which was said to be undescribed.

The Secretary read a letter from Mr. Merrifield, pointing out that the statement made by Mr. Fenn, at the meeting of the Society on the 1st April last, of his views on the effects of temperature in causing variation in Lepidoptera, was incorrect; he (Mr. Merrifield) had never suggested what might happen to *Taniocampa instabilis*, and had expressly stated that he had found a reduction of the temperature below 57° to produce no effect, whereas in Mr. Fenn's experiments the temperature must have been below 40°.

The Secretary also read a letter which Lord Walsingham had received from Sir Arthur Blackwood, the Secretary of the Post Office, in answer to the memorial which, on behalf of the Society, had been submitted to the Postmaster-General, asking that small parcels containing scientific specimens might be sent to places abroad at the reduced rates of postage applicable to packets of *bonâ fide* trade patterns and samples. The letter intimated that, so far as the English Post Office was concerned, scientific specimens sent by sample post to places abroad would not be stopped in future.—H. Goss, *Hon. Secretary*.



## NOTICES OF NEW BOOKS.

*Wild Life on a Tidal Water: the Adventures of a House-boat and her Crew.* By P. H. EMERSON. Illustrated with 30 Photo-etchings. Together with an Appendix "Breydon, Past and Present." London: Sampson Low, Marston & Co. 4to., pp. 145.

WE do not know who first introduced the fashion of writing handbooks to the Norfolk Broads, but whoever the author may have been, he has had many copyists, and, to judge by the books which continue to appear, the supply of such guides bids fair to exceed the demand. As might be expected, they are of very unequal merit.

From the naturalist's point of view we have read nothing better than the description of a Norfolk Broad in summer and in winter, with all its wealth of bird-life, to be found in the late Henry Stevenson's 'Birds of Norfolk.' But this is no more than was to be expected from so accomplished an observer, who, from a life-long residence within easy reach of the Broads, was intimately acquainted with most of them. The case is far otherwise with the majority of visitors; or at least with those who have essayed to write guide-books to the Broads. Their experience, as a rule has been limited to a few weeks, and their knowledge of natural history is of the slenderest description. The least pretentious, and perhaps on that account the most acceptable volumes of the kind, are those in which the writers have attempted no more than an account of a pleasant holiday spent in exploring some of the Norfolk broads and rivers, with such statistics as are likely to be of use to those inclined to follow their course.

In the handsomely illustrated quarto volume before us we have something more than this—something beyond the mere narrative of an enjoyable summer cruise. In the thirty photo-etchings on toned paper there is a direct appeal to the artistic feeling of the reader, who is presented with some of the most striking views obtainable *en route* from the deck of a house-boat. They are of unequal merit, owing to the difficulty of focussing when working with a quick exposure shutter on a swift tideway, and the difficulty in securing proper paper, since that which is admired

for etchings is unsuitable for printing photo-gravures. But, in spite of these drawbacks, they are extremely pleasing and effective realisations of the author's descriptions. The "Tidal Water," it were almost needless to remark, is Breydon Harbour, and the thirty illustrations have all been taken in the immediate neighbourhood of Great Yarmouth.

As regards the text, the descriptions are lightly written, and some of the dialogues with Norfolk fishermen, in which characteristic provincialisms are introduced, are amusing enough. There are two or three irrelevant chapters which possess no interest for any but the author, and might well have been omitted. From the zoologist's point of view the most useful portion of the work is the "Appendix," by Mr. Fielding Harmer, entitled "Breydon Water, Past and Present," with notes on the rarer birds procured there, and a chart showing the channels, and soundings in feet, at low water.

Forty-five years' experience as a punt-gunner has enabled Mr. Harmer to write authoritatively on the subject, and his account of this celebrated resort of wildfowl—which, if measured at its extreme limits, is four and a half miles long by a mile and a half broad—will be perused with interest by all naturalists who are also sportsmen.

By the name "Breydon" is understood all that is contained within the flint-faced banks which border the water on either side, and prevent the flooding of the adjoining marshes when the spring tides are forced up by strong N.W. winds. Within these banks are formed the channels, creeks, mud-flats, saltings, and crops of sea-grass (*Zostera*). As this piece of water lies in nearly the most easterly part of England, and opens into the North Sea, it is naturally most attractive to the wildfowl which come south in the autumn and go north in the spring. Mr. Harmer considers that more rare birds have been shot on Breydon and the adjoining marshes than anywhere else in England.

During the last twenty years great changes have been taking place. The channels have been gradually filling up, and there are indications that, before many more years can elapse, the whole extent of Breydon Water, with the exception of the main channel, will be dry at low water. The reed-beds have all disappeared; half of the saltings have been washed away, two having entirely disappeared; the marshes have been drained; the

decoys, with one exception, are no longer worked; civilisation encroaches at all points; shoulder-gunners are on the increase on the rivers and broads; in short, all these factors are destroying what was formerly, for its extent, one of the best punting resorts on the coast. With this destruction of their natural haunts it is not surprising that many species of birds are disappearing.

What a famous place it once was for waterfowl of all kinds may be inferred from Mr. Fielding Harmer's list of the species which at various times have been procured there. This list would have been more instructive if Mr. Harmer had not adopted the embarrassing and useless plan of enumerating every species in the British list, leaving the reader to infer that all those to which no observations are appended have *not* occurred there. It would have been far better to have omitted these altogether. "I have given" (he says) "Yarrell's complete list of British birds; when no note is made, it will be understood that these birds have not been observed on Breydon." Then why include them? He has not adopted Yarrell's classification, which renders any comparison with that work very troublesome. Nor is it possible, for the reasons stated, to estimate properly what proportion of the whole number of species has been met with in this much-favoured locality.

From a cursory perusal which we have made of this list, it appears that a closer examination of the records relating to Norfolk, which have been published from time to time by ornithologists resident in Norfolk, would have enabled the author to make it much more perfect than it seems to be. Nevertheless, as a conscientious attempt to elucidate the avifauna of a particular district, it forms an acceptable addition to the literature of the subject.

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*The Birds of Sussex.* By WILLIAM BORRER, M.A., F.L.S.

With a map and six coloured plates, by J. G. Keulemans.

London: R. H. Porter. 1891. 8vo., pp. 385.

IF fifty years of close observation of the habits and movements of birds, in the county in which the author has continuously resided, be considered, as it undoubtedly is, the best qualification for giving some account of them, assuredly no one was better qualified than Mr. Borrer to undertake the preparation of the present volume, which bears on every page the stamp of accuracy.

The geographical position of Sussex, with its long frontage to the English Channel, naturally makes it a much frequented place of call for the hosts of birds which annually alight upon or leave our shores, while the rare combination of tidal waters, wide rolling downs, and beautiful woods, many of them relics of ancient forests still possessing much of their wild and pristine grandeur (as St. Leonard's Forest, and the forests of Ashdown, Tilgate, and Worth), render it one of the most important ornithological districts in England.

In an Introduction of ten pages Mr. Borrer notices the chief physical features of the county, and has to chronicle, alas ! many changes inimical to bird-life, especially the intersection of Sussex with railways (not only inland, but along the coast), the reclamation of marsh land, and the breaking up of downland under cultivation. Particularly does he deplore the disappearance of Pagham Harbour, between Selsea and Bognor, once such a paradise for the ornithologist, but now unfortunately reclaimed and drained.\*

These alterations of the face of the country have worked corresponding changes in its bird-life, and many species have now to be chronicled as rare which formerly were not uncommon. But Mr. Borrer's experience is long enough to enable him to print many interesting observations made in bygone years, when places like Pagham Harbour, Amberley Wildbrook, and Henfield Common had charms for the sportsman as well as for the naturalist, and when many a good day's shooting was rendered memorable by the observation of some curious bird in haunts still unspoiled by the agriculturist.

If we have any fault to find with Mr. Borrer's volume, it is that some of his chapters are too short, and do not include enough of his own field-notes. He could, "an he would," have told us much more, but perhaps feared to make his volume too bulky. Occasionally records of rare species, or interesting notices relating to Sussex birds, have escaped his memory, or his research. We may instance a few:—The occurrence of the

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\* In 'The Field' of July 2nd and 16th, 1887, will be found two articles on "Pagham Harbour, Past and Present," in which the writer, from personal experience, contrasts its former appearance with its condition after the sea had been banked out, and gives an account of the wildfowl and waders which once resorted there in numbers.



Great Grey Shrike in England during the summer months is so unusual, that the capture of a pair near Hailsham in the summer of 1851 (Zool. 3388) might have received a passing notice. Mr. Borrer might have referred to the remarkable nest of a Nuthatch which was found at East Grinstead in the summer of 1871, and was described and figured in 'The Field' of Oct. 28th, 1871: it was formed in a haystack, and plastered with clay, and, when cut out, weighed 11 lbs., and measured 13 in. by 8 in. at the widest part. The height of the nest from the ground was between five and six feet, and the lining was composed of dead leaves. The description furnished by the finder of it was communicated by the late Frederick Bond, and was reproduced in this journal (Zool. 1871, p. 2850). The story of the old Nuthatches from Cowfold continuing to feed their young which had been removed to Henfield,  $4\frac{1}{2}$  miles distant, was published in 'The Field' of Oct. 4th, 1873, not 1878, as misprinted on p. 84 of Mr. Borrer's book.

Two more instances of the occurrence of the Tawny Pipit, *Anthus campestris*, may be added to those mentioned pp. 105, 106 — namely, one at Brighton, Oct. 1876, reported by the late G. Dawson Rowley, in 'The Field' of Oct. 22nd in that year; and another, also at Brighton, Oct. 23rd, 1882, as announced by Mr. Thomas Parkin (Zool. 1883, p. 34).

The Woodlark, *Alauda arborea*, regarded (p. 119) as "very local and by no means common," may be noticed as breeding annually in the neighbourhood of Uppark, in West Sussex. The latest example of the Short-toed Lark known to have been captured in Sussex is by some oversight not mentioned (p. 113). It was taken by a birdcatcher at Amberley, on the 18th July, 1888, as recorded by Mr. Howard Saunders (Zool. 1888, p. 350). The date of capture of the White-winged Lark, *Melanocorypha sibirica*, accidentally omitted, was the 22nd Nov. 1869, and to the footnote appended to the account of this species (p. 113) may be added the words, "but the mistake was corrected by Bond himself, *tom. cit.*, p. 2022."

An example of the Lapland Bunting, *Plectrophanes lapponica*, not noticed (p. 115), was caught near Brighton in Sept., 1854 (Zool. 1855, p. 4558).

Mr. Borrer refers to a Sussex specimen of the Rustic Bunting, *Emberiza rustica* (p. 117), as "the only example which

has occurred in England"; but a second was procured at Easington Holderness, 17th Sept., 1881, as recorded by Mr. W. Eagle Clarke (Zool. 1881, p. 465); and a third at Elstree Reservoir, on the borders of Middlesex and Hertfordshire, Nov. 19th, 1882, as mentioned by Lord Lilford (Zool. 1883, p. 33). The Cirl Bunting, *E. cirrus*, has in several years been found breeding in West Sussex, in the parish of Harting.

There is some mistake in the reference made (p. 130) to Bond's record of the Serin at Brighton, in April, 1870. On turning to the volume and page indicated (Zool. 1884, p. 119), we find no allusion to it. A curious mistake also occurs in the opening sentence of the article on the Parrot Crossbill (p. 140), where the author makes the statement that "this species was formerly considered only a large variety of the Common Crossbill, but is now held to be distinct." The precise converse of this is the case (*cf.* Saunders' 'Manual,' p. 194).

Under the head of Chough it would have been well to have noted that at Dangstein, in West Sussex, Lady Dorothy Nevill for many years kept Choughs, which were allowed complete liberty and nested there (*cf.* 'The Field,' 23rd and 30th Sept., and 7th Oct., 1882).

The Ravens of Uppark should have been noticed. They were strictly protected, and bred there annually for many years, where the present writer has often seen them.

The breeding of the Hoopoe, *Upupa epops*, at Southwick, near Shoreham (p. 168) is noteworthy. Several other instances of the occurrence of this bird in Sussex might be mentioned in addition to those noticed, the dates being April 19th, 24th, and 27th.

Treating of the Greater Spotted Woodpecker, Mr. Borrer states (p. 174) that he is not aware that it has any local name. We have heard Sussex gamekeepers occasionally refer to it as the "French Magpie."

As to the introduction of the Red-legged Partridge into Sussex, our author might have noted that in 1776 (as stated in 'The Field' of Jan. 27th, 1883) Sir Harry Fetherstonhaugh imported a lot of eggs from France, and, from a correspondence with his mother which has been preserved, it appears that several coveys were reared within the walled gardens of Harting Place and in the Park; and, though the attempt to establish them there

permanently failed, there can be little doubt that from this centre of introduction the county of Sussex was originally stocked.

Under the head of Great Bustard (p. 199) Mr. Borrer gives an interesting piece of information :—

“ The Bustard ” (he says) “ was often hunted with Greyhounds by my grandfather, who died at an advanced age in 1844. He told me that he had had many a good course with these birds. He used to go out early in the morning after a foggy night, to look for them feeding in the wet turnips, when they were frequently so thoroughly soaked as to be unable to fly. He generally found them in little parties of from five to ten, and sometimes took five or six in a morning; commonly young birds, though occasionally he had known an old one to be caught; but they avoided them as much as possible, for, when overtaken by the dogs, they fought savagely, and had more than once damaged the Greyhounds.\*

“ They were most common on a part of the Downs between the Dyke and a place known as Thunders Barrow, from certain ancient tumuli supposed to be British. My father also, while riding on the Downs about a mile from Patcham, fell in with nine of these birds feeding in a turnip-field; this was about the year 1810. I have heard them spoken of by some of the old Southdown shepherds as having been often seen by them. Of course the birds then bred there.”

The pages relating to the Bustard were probably printed off before the news could have reached the author of the latest occurrence of this species in Sussex, namely, on the 6th January last, when one (a hen bird) was shot on Pett Level, near Winchelsea. (See ‘ The Zoologist ’ for March last, p. 104).

We regret that want of space precludes our noticing many other passages which we had marked for comment, more particularly amongst the Waders and Wildfowl, to which we have paid considerable attention in Sussex harbours and marshes. We may possibly be enabled to return to the subject later, but for the present we can do no more than direct attention to the extracts, which are given in an Appendix, from the unpublished MSS. of William Markwick, of Catsfield, near Battle (see Zool. 1890, pp. 335 and 379), and to the half-dozen coloured plates, by J. G. Keulemans, with which the volume is embellished. The species

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\* The former practice of coursing Bustards with Greyhounds has been noticed not only in England (‘ The Naturalists’ Pocket-Book, or Complete Cabinet of Nature,’ London, 1799-1800), but also in Russia (Dresser, ‘ Zoologist,’ 1871, p. 2512).

represented are the Gyr Falcon, the Honey Buzzard, the Rufous and Aquatic Warklers, the Nutcracker, and the Squacco Heron; and the utility of the work is enhanced by the addition of a county map.

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*The Birds of Devonshire.* By WILLIAM E. H. PIDSELY. Edited, with an Introduction, and short Memoir of the late John Gatcombe, by H. A. MACPHERSON, M.A. With Map and Coloured Plate. London: Gibbings. Exeter: Commis. 1891. 8vo, pp. 194.

BEING aware that Mr. W. S. D'Urban and the Rev. M. A. Mathew have, for the last twenty-five years, been engaged in collecting materials for an account of the Birds of Devonshire, it was with some surprise that we read the announcement of a book, with this title, by Mr. Pidsley, a gentleman unknown to fame as an ornithologist, even in his own county. To say that we are disappointed with it, is only to echo probably the verdict which has already been passed upon it by more competent critics, and it appears to us that whatever merit it may possess is almost entirely due to the editorial touches bestowed by Mr. Macpherson. That Mr. Pidsley is wanting in experience, is evident from the general lack of original observations of any importance. To a certain extent, of course, books of this kind must be in the nature of compilations; but then the compiler should at least be well versed in the literature of the subject, even if he does not always possess the requisite knowledge to enable him to distinguish the wheat from the chaff.

On the first page of the "Introduction," Devon is stated to be the second largest county in England. If we mistake not, Yorkshire and Lincolnshire are both larger, the area of the latter county being 7 per cent. greater than that of Devon.\*

The river Tamar, which is said to rise in Cornwall (Introd. viii.), takes its origin, we believe, from the Devonshire hills, on the borders of Cornwall; and Cranmere Pool, which is stated to be the largest sheet of water on Dartmoor, and to fall short of 700 feet in circumference (*l. c.*), is really only 384 feet in circum-

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\* See Pengelly, Trans. Devon. Assoc., 1883, p. 230.



ference, and has held very little water since 1844.\* These are, doubtless, small matters, but it is well to be accurate.

In the notice of previous publications on the natural history of Devonshire, we were not prepared to find so high a value placed on Mr. Brooking Rowe's Catalogue (p. xv), which is scarcely more than a bare list of names, conveying little information; most of the species being described as "common," "not uncommon," "rare," "scarce," or "occasionally met with," while several of the commoner birds are omitted altogether. Mr. D'Urban's much more complete List, printed in Besley's 'Handbook of Exeter,' 1863 (second edition, revised in 1871), and his fuller List in the 'Handbook for South Devon,' 1875, ought surely to have deserved mention, especially as several of the statements therein seem to have been copied (no doubt unconsciously), at third hand, from writers who have omitted to acknowledge the source of their information.

We are glad to see the obituary memoir of John Gatcombe, which is incorporated in the Introduction (pp. xvi-xxii), and forms a fitting tribute to the memory of one of the keenest of Devonshire naturalists, whose articles, published in 'The Zoologist,' have apparently furnished the greater portion (certainly the most valuable part) of the information contained in the volume before us.

Turning to the body of the book, it strikes us that, in the case of some of the species mentioned, some interesting points have not been sufficiently investigated. We will deal with them in the order in which they occur.

On p. 15 it is remarked that the Lesser Whitethroat, *Sylvia curruca*, "has not, as yet, been found breeding in the county." Has our author overlooked the statement, by Mr. G. F. Mathew ('Naturalist,' 1866, p. 358), to the effect that it has nested in North Devon? His words are:—"I have repeatedly seen this bird and taken its nest, and do not call it uncommon in the neighbourhood of Barnstaple." We are not aware that this observation has been shown to have originated in a mistake.

The Dartford Warbler (p. 16) is, perhaps, extinct now in Devonshire, none having been reported since 1877; but if the

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\* See Rowe's 'Perambulation of Dartmoor,' and Crossing's 'Amid Devon's Alps.'

author has any evidence to the contrary, it might have been well to have noted it.

Mr. Pidsley does not throw any light on the breeding of the Bearded Titmouse (p. 23) in Devonshire. Bellamy, whom he quotes, of course derived his information from Comyns, an observant ornithologist, often quoted by Montagu, and, as the locality referred to is (or was) a likely one, his observation hardly deserves to be characterised as "vague, hearsay evidence."

It is to be presumed that the "droves" of *Parus cristatus*, referred to by the editor (p. 25), were not observed by him in Devonshire. The wording is a little vague. If we are not mistaken, the late William Brodrick found *Motacilla alba*, Linn., breeding near Ilfracombe, and, though Mr. Pidsley characterises *Motacilla melanope*, Pall. (the Grey Wagtail), as a scarce bird on Dartmoor (p. 28), he has overlooked the fact that Gatcombe often found it breeding on the borders of Dartmoor.

We are told (p. 41) that the Hawfinch has not been found breeding in Devonshire, but we have an impression that Mr. D'Urban has found the nest in South Devon. The bird itself is often met with there in winter and early spring.

The author does not seem to be aware that the so-called Parrot Crossbill, which he regards as a distinct species (p. 45), is now generally regarded as merely a large-billed race of the Common Crossbill (*c. f.* Saunders, 'Manual,' p. 194). It was Mr. D'Urban who pointed out to Seward, the taxidermist, that the Crossbills sent to him from Exmouth, in January, 1888, belonged to this race (*c. f.* 'Zoologist,' 1888, p. 105).

Large flocks of Snow Buntings (p. 49) are not "quite unknown" in Devon. Mr. G. F. Mathew saw a large flock near Barnstaple in the autumn of 1863 (Zool., 1863, p. 8845). The Wood Lark, *Alauda arborea*, which is stated (p. 56) to be "on the whole a scarce bird," abounds in many parts of Devon, particularly in autumn.

In enumerating the reported instances of the occurrence of the Little Bittern in Devonshire, Mr. Pidsley has overlooked the notable example recorded by Montagu (Orn. Dict. Suppl.), on the authority of Comyns. This bird, a female, was shot by the river Credey in May, 1808, and was found to have a considerable number of eggs in the ovary, some of which were so enlarged "as to induce an opinion that a brood would have been produced

in this country, especially as a male was afterwards shot not very distant, and had been previously observed near the same place. A third was also killed in the same neighbourhood during that summer." Montagu adds:—"Mr. Comyns, who gave us the above information, has two of these birds in his collection."

With regard to the White Stork, of which the last Devonshire example is stated to have been shot at Topsham on the Exe, in July, 1852 (p. 93), we have a note that there is one in the Exeter Museum, labelled "St. George's Clyst, near Exeter [four miles distant], January, 1856."

The statement (p. 99) that the Sheld-duck has not, to the author's knowledge, been known to breed on Dawlish Warren "within the last *three* or *four* years," is somewhat misleading; for there is good reason to believe that it has not done so for the last *forty* years. The Shoveller, *Anas clypeata*, can scarcely be regarded as a "scarce visitant." It is common enough, at all events, at Slapton Ley, where during the past winter upwards of two hundred were met with. The history of the King Eider, *Somateria spectabilis*, seen by Mr. Gatcombe in the flesh, at Plymouth, some years ago, is unfortunately incomplete (p. 107), there being no evidence as to where it was obtained. It is not unlikely it may have been brought in ice by some ship with salt-fish from Newfoundland.

Writing of the Red-legged Partridge (p. 118), Mr. Pidsley, no doubt correctly, characterises it as an introduced species, but does not mention an earlier date for its appearance than 1860 in the district of Plymouth. It may be well, therefore, to note that this bird was met with on Waddell's Down, near Exeter, so long ago as 1844. The Red Grouse is not included in Mr. Pidsley's work; and he is probably unaware that early in the present century—namely about 1820-25—Mr. John Knight, of Simonsbath (the father of the present Sir Frederick Knight, M.P. for Worcestershire), turned out several pairs of Red Grouse *on Exmoor*, by way of experiment. Although no permanent success attended his efforts in that direction, it is worth while, in view of the isolated instances of the occurrence of the Red Grouse in Devonshire which have been reported, to bear in mind this bygone attempt to introduce it.

We might add many other comments to those already given, but want of space precludes it. We have noticed a good many

typographical errors besides those corrected by the author in his *Errata*, some of which we should have thought too obvious to have escaped detection: thus we find *Mula* for *Inula* (p. 31): *Otter Dairs* for *Otter Davis* (p. 88); and the curious statement (p. 156), under the head of Curlew, that "now breeding birds may be met with *at all seasons*."† Of course the author wrote "non-breeding birds."

The single coloured plate, which serves as a frontispiece to this volume, represents a Buff-backed Heron, *Ardea bubulcus*, in adult plumage. It would have been better to have figured the actual Devonshire specimen which is in immature plumage, and which would have been easily accessible to the artist, since it is preserved in the Natural History Museum at South Kensington.

On the whole, considering the richness of the Devonshire avifauna, and the important collections of notes which are known to exist, but which are as yet unpublished, we cannot regard this work as sufficiently comprehensive or adequately dealing with the subject.

The thanks of ornithologists are certainly due to Mr. Macpherson for the skill with which he has edited the materials placed at his disposal, and for the additions which he has evidently made to the original manuscript; but we venture to think that critical readers will look forward to the preparation and publication of a better work on the Birds of Devonshire, by someone of greater experience than the author of the present volume.

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*Bibliothèque Scientifique Contemporaine.* Post 8vo. Paris: Librairie, J. B. Baillière et Fils. 1890-91.

- (1) *La Géographie Zoologique.* Par le Dr. E. L. TROUESSART. Avec 63 figures dans le texte, et deux cartes. 1890.
- (2) *Les Facultés Mentales des Animaux.* Par le Dr. FOVEAU DE COURMELLES. Avec 31 figures. 1890.
- (3) *Les Huîtres et les Mollusques Comestibles.* Par ARNOULD LOCARD. 1890,
- (4) *Les Sociétés chez les Animaux.* Par le Dr. PAUL GIROD. Avec 53 figures. 1891.
- (5) *L'Évolution des Formes Animales avant l'apparition de l'homme.* Par FERNAND PRIEM. Avec 173 figures. 1891.



WE take it for granted that most of our readers are acquainted with some at least of the volumes issued by Messrs Kegan Paul & Co., in their "International Scientific Series," which includes such excellent books as Prof. Karl Semper's 'Natural Conditions of Existence as they affect Animal Life,' Prof. Heilprin's 'Geographical and Geological Distribution of Animals,' and Sir John Lubbock's 'Senses, Instinct, and Intelligence of Animals,' which are all books to be read by naturalists. But it is perhaps not so well known to English readers that MM. Baillière et Fils, in Paris, have for some time past been also publishing a small octavo series, with the general title "Bibliothèque Scientifique Contemporaine," in which are to be found several works on kindred subjects by French writers.

We give, above, the titles of those which have reached us, all of which seem to us deserving of attentive perusal, and we regret that want of space does not permit us to enter so fully as we could wish into the merits of each one of them.

The object of the publishers is evidently to provide a series of handy volumes, at a moderate price, for those who desire to possess some knowledge upon the scientific questions of the day, but whose occupations or engagements prevent them from devoting much time to original research. In one sense these treatises may be termed popular compilations from the best sources; but the treatment is original, and there are no translations, while, in most cases, the names and scientific position of the authors afford a sufficient guarantee of accuracy.

The first volume on our list, that of Dr. Trouessart, on Zoological Geography, reminds us, by its title and the nature of the contents, of Dr. Heilprin's work in the English series above referred to; but a comparison of the two suffices to show that, although the subject-matter is of necessity similar, the mode of treatment, the division of the subject, and the facts collected, are all original.

Considering that the study of the geographical distribution of animals is so widely recognised amongst zoologists, it is not a little singular that there was no book on the subject in French until that of Dr. Trouessart appeared. It was to supply this want, in fact, that his work was undertaken, and he may be con-

gratulated on the result, for it is at once clear and concise. In the main, the author adopts the views of Dr. A. R. Wallace, which, as he says, have become classical; but fifteen years progress in the science has necessitated a complete revision of the subject, and the size of the present volume demanded a different treatment of it.

A careful study of the most recent Monographs and local Faunas, and more than ten years spent in the collection of a great mass of materials, appear to have convinced the author that it was impossible to make the geographical distribution of the lower animals fit in with the divisions proposed by Dr. Wallace, and he accordingly had to plan his chapters according to the views of specialists. Students of the Invertebrata will give him credit, no doubt, for having striven to do justice to this part of the subject, the specialists whose views he has adopted being recognised authorities for the different groups. We have been much struck with Dr. Trouessart's remarks (pp. 330, 331), "Sur le Chien Sauvage, *Canis dingo*, d'Australie, et l'origine de la Faune de mammifères placentaires terrestres du même pays," which, but for its length, we should have been glad to quote. It is virtually a refutation of the theory that the Dingo is descended from parents originally introduced by the earliest settlers in Australia, and an expression of the view that as fossil remains of the Dingo have been found in the pleiocene beds of Victoria, and as no trace of the existence of man at the same epoch has been discovered, the Dingo must have been originally indigenous to Australia, and, like the *Notelephas australis* of Owen (whose fossil remains have come to light in Queensland), must have found its way thither at a time when Australia formed part of the continent of Asia, descended from the same stock as the Wild Dogs of India and Sumatra.

Dr. Foveau de Courmelles' volume, on the mental faculties of animals (2), shows considerable research on the part of the writer, the number of authorities quoted by him (both ancient and modern) amounting to upwards of four hundred, including many familiar names of English naturalists. The subject is a very difficult one; for it is evident that merely to imagine traits of intelligence, without proving their existence, is to wander into the realms of pure fancy, and, on the other hand, to quote facts is simply to follow a well-beaten track. The middle course was

to deal with known phenomena, and to group them in such a manner as to admit of their being compared with the mental faculties of man — and this course has been adopted by our author.

After a critical examination of the views of previous writers, occupying nearly fifty pages, Dr. Foveau de Courmelles, in successive chapters, deals with instinct, qualities and defects in animals, their intuitive faculties, their faculty of conception (such as memory inherited or otherwise, association of ideas, recognition of portraits, imagination, &c.); mimicry; fear and its manifestations; sleep, and death; foresight, and prognostication of weather; sensibility; emotions; affections and passions. Altogether a fascinating book, full of curious and suggestive facts.

In M. Locard's volume (3), on oysters and edible molluscs, we have a book of a very different kind, yet withal a useful and instructive one. The main idea is "food supply," and how to provide man with wholesome, varied, and sufficient sustenance is the problem which the author considers to be one of the most important at the present day. He points out what indeed has been long known to naturalists, namely, that there is a great deal of good wholesome food to be obtained, which costs next to nothing, but which, either from ignorance or prejudice, is not utilised; and this is especially the case with a great variety of molluscs. Concerning the natural history of these, we do not find much that English readers have not already learnt from such books as Lovell's 'Edible Mollusca'; but there are some useful statistics from French sources, and a curious chapter on Oyster-culture in the Middle Ages which is not without interest.

Dr. Paul Girod's treatise (4), on animal colonies and associations, goes over familiar ground. The subject is a popular one, and has often furnished a theme to writers on natural history topics. Hence it was hardly to be expected that anything very new could be written about it. Even in the case of the Invertebrate animals, concerning which the majority of people know far less than they do of the Vertebrata, great advances in knowledge have been made of late years; and, thanks to such volumes as Sir John Lubbock's 'Senses of Animals,' the same writer's 'Ants, Bees and Wasps,' and Prof. Van Beneden's 'Animal

Parasites and Messmates,' we have to a great extent become familiarised with the habits and ways of many of these lowly creatures, which at one time were regarded as almost too insignificant to deserve attention. The author, in his Introduction, distinguishes between "Colonies" and "Societies or Associations," and thus expresses his reasons for commencing with a consideration of the Vertebrata:—"Il nous a semblé utile d'aller des formes animales les mieux connues de tout le monde, (les Vertébrés) vers les types des Invertébrés. moins familiers à ceux qui abordent l'étude des sciences naturelles. De ce fait, nous abordons l'histoire des *Associations* avant celle des *Colonies*.' In some cases the author's remarks suggest compilation rather than observation, as, for instance, when he regards Crows as gregarious, and attributes to these birds habits which are only applicable to Rooks.

The works of Alfred Espinas and Edmond Perrier are freely quoted, and the illustrations—many of them above the average in point of accuracy—have apparently been derived from that zoological encyclopædia 'Les Merveilles de la Nature.' If there is nothing very new in what Dr. Girod tells us, what he has to say is well said, and there are so many aspects to the subject, that it is one of which we can hardly get tired.

In the "Evolution of Animal forms before the appearance of Man" (5), M. Priem has given us a very solid piece of work, purely palæontological, and the numerous woodcuts (175) with which it is illustrated add much to the attractiveness of his remarks. They represent the principal types, and the chief transition forms. The subject is one to which it is impossible to do justice in the very brief notice which we can extend to it. Suffice it to observe that, after stating the principles which justify a contention that the animal world has undergone a progressive evolution, the author attempts to show that it is generally possible to indicate the factors of evolution in a genus, order, and class. and he especially strives to show the existence of a progressive evolution in the lowest of all animal forms, because, as he says, "jusqu'à ces derniers temps elles se prêtaient moins bien à cette démonstration que les formes supérieures."

